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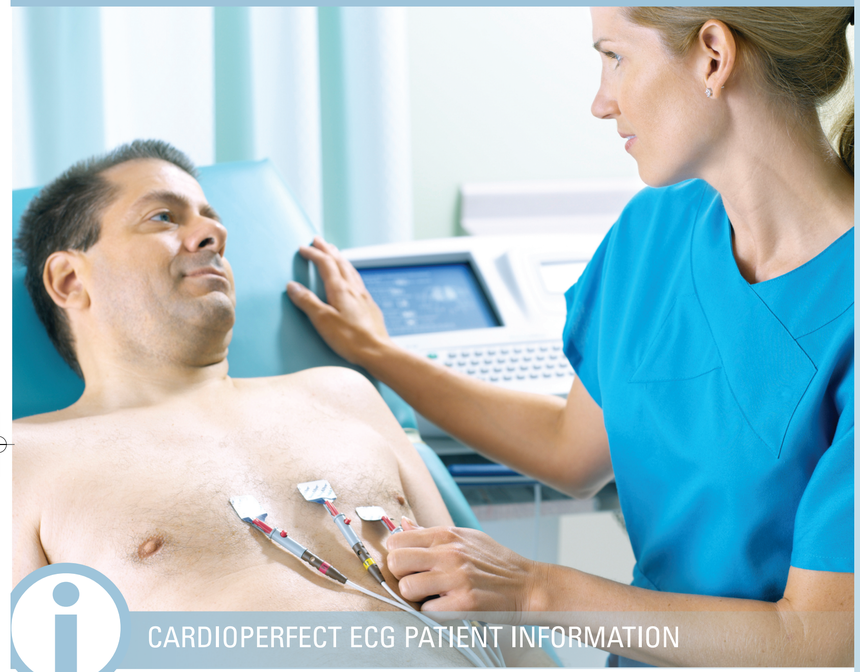


CARDIOPERFECT ECG PATIENT INFORMATION

What is an electrocardiogram?
An electrocardiogram—often abbreviated, as EKG or ECG—is a test that measures the electrical activity of the heartbeat. With each beat, an electrical impulse (or "wave") travels through the heart. This wave causes the muscle to squeeze and pump blood from the heart.

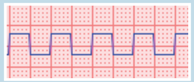
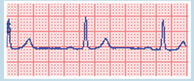
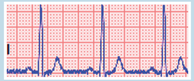
Why is it done?
An ECG gives two major kinds of information. First, by measuring time intervals on the ECG, a doctor can determine how long the electrical wave takes to pass through the heart. Finding out how long the wave takes to travel from one part of the heart to the next shows if the electrical activity is normal or slow, fast or irregular. Second, by measuring the amount of electrical activity passing through the heart muscle, a cardiologist may be able to find out if parts of the heart are too large or are overworked.

How is it done?
Several sensors called electrodes will pick up the electrical activity in the heart. You will be asked to lie down, and technicians will put several patches (electrodes) on the chest, arms and legs. Usually the electrodes are soft and don't cause any discomfort when they are put on or taken off by the technician. The electrodes are connected to wires called leads, which are connected to the ECG machine. The electrical activity of the heart is then recorded on a moving strip of paper in the ECG machine. During the ECG recording, you should lie quietly for 10-20 seconds, because the electrocardiograph will detect any muscle or body movement.

Does it hurt?
No. There is no pain or risk associated with having an electrocardiogram.

Is it harmful?
No. The machine only records the ECG.

LEAD QUALITY PROBLEMS

Condition	Causes	Actions
Lead-off information is displayed on the screen. OR One or more leads prints as a square wave: 	• Electrode contact may be poor. • A lead may be loose. • A lead is disconnected from patient.	• Reattach the lead. • Replace the electrode. • Verify that the electrode area has been properly prepared: shaved, cleaned with alcohol or acetone, allowed to dry. • Verify that electrodes have been properly stored and handled.
Wandering baseline (an upward and downward fluctuation of the waveforms):	• Electrodes that are dirty, corroded, loose, or positioned on a bony area. • Insufficient or dried electrode gel. • Oily skin or body lotions. • Rising and falling of chest during rapid or apprehensive breathing. • Patient moved.	• Clean skin with alcohol or acetone. • Reposition or replace electrodes. • Help patient relax. • If wandering baseline persists, turn the baseline filter on. • Ask patient to remain still and relaxed.
Muscle tremor interference (random, irregular voltage superimposed on the waveforms). May resemble or coincide with AC interference: 	• Patient is uncomfortable, tense, nervous. • Patient is cold and shivering. • Exam bed is too narrow or short to comfortably support arms and legs. • Arm or leg electrode straps are too tight.	• Help patient get comfortable. • Check all electrode contacts. • If interference persists, turn the muscle-tremor filter on. If interference still persists, the problem is probably electrical in nature. See the following suggestions for reducing AC interference.
AC interference (even-peaked, regular voltage superimposed on the waveforms). May resemble or coincide with muscle tremor interference: 	• Electrodes that are dirty, corroded, loose, or positioned on a bony area. • Insufficient or dried electrode gel. • Patient or technician touching an electrode during recording. • Patient touching any metal parts of an exam table or bed. • Broken lead wire, patient cable, or power cord. • Electrical devices in the immediate area, lighting, concealed wiring in walls or floors. • Improperly grounded electrical outlet. • Incorrect AC filter frequency setting or AC filter is turned off.	• Verify that the patient is not touching any metal. • Verify that the AC power cable is not touching the patient lead cable. • Verify that the proper AC filter is selected. • If interference still persists, the noise may be caused by other equipment in the room or by poorly grounded power lines. Try moving to another room.

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CARDIOPERFECT RESTING ECG QUICK START GUIDE

Welch Allyn®
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1 Install Software and USB Drivers

This Quick Start Guide is intended for use with CardioPerfect Workstation version 1.6.0 or higher. For complete directions for use and warnings, please consult your user manual located on the software CD.

2 Connect your Recorder

- Connect the PC interface cable (ProLink) to a USB port on your computer.
- Connect the other end to the black connector on the recorder.
- Connect the patient cable to the blue connector on the recorder.

3 Prepare Your Patient

The quality of an ECG is dependent on the preparation and the resistance between the skin and the electrode. To ensure a good quality ECG and minimize the skin/electrode resistance, remember the following points:

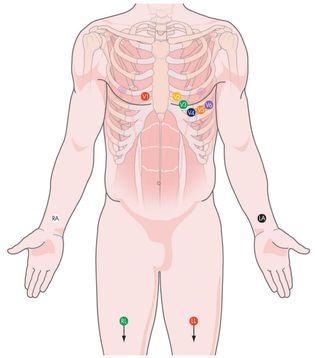
- Ensure that the patient is warm and relaxed.
- Shave electrode area before cleaning.
- Thoroughly clean the area with alcohol.
- Let dry prior to applying electrodes.

4 Connect Electrodes

AHA Electrode Placement

RA and LA electrodes should be placed on the wrists.
RL and LL electrodes should be placed a few inches above the ankle.

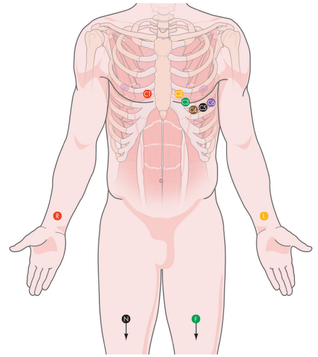
- V1 — Fourth intercostal space at the right border of the sternum
- V2 — Fourth intercostal space at the left border of the sternum
- V3 — Midway between locations V2 and V4
- V4 — At the mid-clavicular line in the fifth intercostal space
- V5 — At the anterior axillary line on the same horizontal level as V4
- V6 — At the mid-axillary line on the same horizontal level as V4 and V5



IEC Electrode Placement

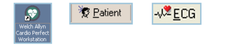
R and L electrodes should be placed on the wrists.
N and LF electrodes should be placed a few inches above the ankle.

- C1 — Fourth intercostal space at the right border of the sternum
- C2 — Fourth intercostal space at the left border of the sternum
- C3 — Midway between locations C2 and C4
- C4 — At the mid-clavicular line in the fifth intercostal space
- C5 — At the anterior axillary line on the same horizontal level as C4
- C6 — At the mid-axillary line on the same horizontal level as C4 and C5



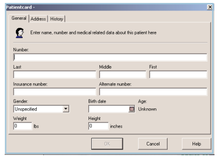
AAMI	V1	V2	V3	V4	V5	V6	RA	LA	RL	LL
IEC	C1	C2	C3	C4	C5	C6	R	L	N	F

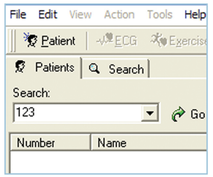
5 Create a New Patient



- Open the CardioPerfect Workstation Software.
- Select Patient.
- Fill in Patient Card.
- Click on the ECG Icon.

- To select a patient from the database:
  1. In the Search box, type parts of the patient name or number.
  2. Click the Go button.
  3. Click on the patient for whom you want to record the test.





6 Record a Test

Select physician names and lead configuration, and click OK.

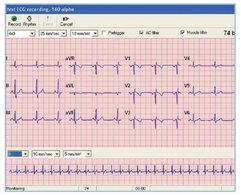
Auto ECG

- Click the Record button to start a 12-lead resting ECG.

Rhythm/Manual ECG

- Click the Rhythm button to start a recording of up to 300 seconds.
- Click Event button to mark areas of interest.
- Click the Rhythm button a second time to stop the rhythm recording.
- Click the Cancel button to cancel.

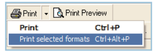
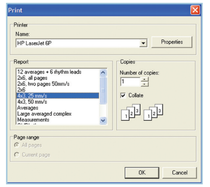
Note: The pretrigger option helps catch events by already saving 5 seconds of traces before you start the recording.The notch filter removes noise that is caused by AC power interference.



7 Review Data and Print Report

- You can choose from multiple ECG report templates.

- If automatic printing is checked in the ECG Print settings, the report will print now.

- If you did not select Automatic printing in the Settings, click on the down arrow next to the Print icon and choose "Print Selected Formats" to initiate printing.

- If you just want to print one type of report, click on the Print icon, and select the desired report page.